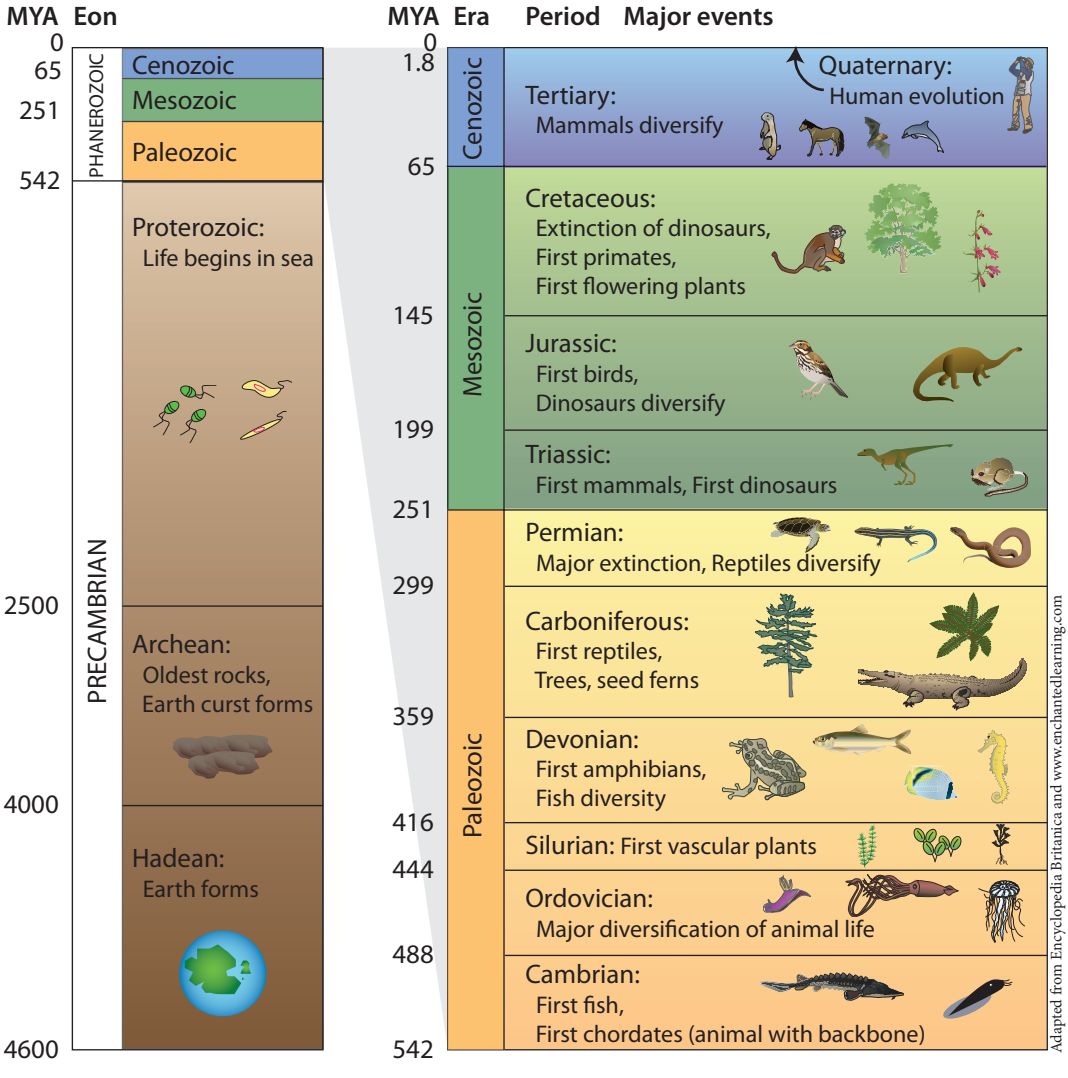
Geological time with major evolutionary events in the fossil record

William L. Kruczynski and Pamela J. Fletcher



The geological time scale is a method of relating the timing and relationship between events that have occurred during the history of the Earth. The Earth is more than 4.5 billion years old, and an appreciation of the expanse of geological time is difficult to visualize. This chart shows the sequence of major evolutionary events that appear in the geologic record. Geologists and earth scientists have used the relationship between layers and types of rocks, presence of plant and animal fossils, and radioactive dating to assemble a sequence of historical events that have occurred over geologic time.

Geologic time is divided into four large segments called Eons: Hadean, Archean, Proterozoic, and Phanerozoic. The Phanerozoic Eon is divided into Eras: Paleozoic, Mesozoic, and Cenozoic. The divisions among Eras reflect major changes in the fossil record, including the extinction and appearance of new life forms. Eras are divided into Periods, a unit of geologic time in which a single type of rock system is formed. Some Periods are divided into Epochs that are not shown on this chart, but a discussion of Epochs appears on subsequent pages in this chapter that summarize the creation of the Florida peninsula, the geology of south Florida and the Florida Keys, and the appearance and disappearance of shorelines and coral reefs.

Dates from the International Commission on Stratigraphy, 2010. MYA = Million years ago.